CLAIMS

1. A method of transporting natural gas in a marine environment, comprising the steps of:

a) providing a heavy lift vessel that has a weather deck area;

b) providing a buoyant module having an interior that contains a pipeline, said pipeline including multiple alternating straight sections and bend sections and multiple layers; and

c) supporting the multiple pipeline layers at different elevations within the module interior;

d) transferring the module to the heavy lift vessel;

e) transferring natural gas from a natural gas source to the module pipeline;

f) transporting the combination of module and heavy lift vessel to a selected destination while the module containing natural gas occupies the weather deck; and

g) transferring the natural gas from the module pipeline to a selected facility.

2. The method of claim 1 wherein the buoyant module has a top, bottom, and a plurality of side walls.

3. The method of claim 1 wherein step "d" includes ballasting of the heavy lift vessel relative to the module.

4. The method of claim 1 wherein the heavy lift vessel is a semi-submersible heavy lift vessel and step "d" includes ballasting the heavy lift vessel.

5. The method of claim 4, further comprising ballasting the heavy lift vessel down a distance that submerges the weather deck and further comprising the steps of floating the module to a position above the weather deck and ballasting the heavy lift vessel and module relative to one another until the weather deck supports the module above sea level.

6. The method of claim 5 wherein the vessel deck area submerges in step "d" a distance of between about 6

and 20 feet.

7. The method of claim 5, further comprising de-ballasting the vessel up while the module is floating above the receptacle deck area.

8. The method of claim 1 wherein step "d" includes sliding the module from land to the vessel weather deck area.

9. The method of claim 1 wherein step "d" includes sliding the module from a dock to the vessel weather deck area.

10. A method of transporting compressed natural gas in a marine environment, comprising the steps of:

a) providing a heavy lift vessel that is capable of moving under its own power in a marine environment to a location that has a compressed natural gas facility with natural gas to be transported;

b) providing a module having a hollow interior and a pipeline;

c) filling the module pipeline with compressed natural gas;

d) transporting the module with compressed natural gas inside the pipeline using the vessel; and

e) wherein ballasting and de-ballasting is used to place the module on the vessel in steps "a"-"d".

11. A method of storing compressed natural gas in a marine environment, comprising the steps of;

a) moving a heavy lift vessel or a barge under its own power in a marine environment to a location that has a compressed natural gas facility with natural gas to be transported;

b) providing a module having a hollow interior and a pipeline;

c) filling the module pipeline with compressed natural gas;

d) storing the compressed natural gas;

e) Discharging and offloading the compressed natural gas; and

f) wherein ballasting is used to place the module on the vessel in steps "a"-"d".

12. A method of storing compressed natural gas in a marine environment, comprising the steps of;

a) moving a heavy lift vessel under its own power in a marine environment to a location that has a compressed natural gas facility with natural gas to be transported;

b) providing a module having a hollow interior and a pipeline;

c) Ballasting the heavy lift vessel and offloading the module into the water at the storage location;

d) filling the module pipeline with compressed natural gas;

e) storing the compressed natural gas until it is offloaded into a compressed natural gas carrier or a pipeline; and

f) wherein ballasting is used to place the module on the vessel and off the vessel in steps "a"-"d".

13. A method of transporting a compressed natural gas module in a marine environment and storing compressed natural gas on land, comprising the steps of:

a) moving a heavy lift vessel under its own power in a marine environment to a location that is to receive compressed natural gas;

b) providing a module having a hollow interior and a pipeline;

c) backing the heavy lift vessel to the dock and offloading the module at the storage location;

d) filling the module pipeline with compressed natural gas;

e) storing the compressed natural gas until it is offloaded into a compressed natural gas carrier or a pipeline; and

f) wherein ballasting is used to place the module on the vessel in "a"-"f".

14. The method of claim 10 wherein step "b" includes prefabricating parts of the pipeline in pieces to maximize the lengths of pieces and to minimize the number of connections in the assembly of the pipe module.

15. The method of claims 10 wherein step "b" includes connecting pieces of metal pipe by field welding end on end the sections together during a fabricating of the pipeline (into sections), and placing the pipeline inside the module.

16. The method of claim 10 wherein step "b" includes connecting pieces of composite pipe in the field by applying adhesive binding to sleeve joints of composite pipe.

17. The method of claim 10 wherein step "b" includes connecting pieces of composite pipe with rotating mechanical locking joints on each end, with the straight piece turning in one direction and locking at both ends.

18. The method of claim 15 wherein in step "b" the pipeline is fabricated of a plurality of straight sections and a plurality of bend sections.

19. The method of claim 15 wherein in step "b" the pipeline is fabricated of sections that have bends that are made with induction bending.

20. The method of claim 13 wherein at least one of the bends is an about 90 degree bend.

21. The method of claim 20 wherein there are multiple about 90 degree bends.

22. The method of claim 13 wherein at least one of the bends is an about 180 degree bend.

23. The method of claim 13 wherein at least one of the bends is an about 90 degree bend and another of the bends is an about 180 degree bend.

24. The method of claim 21 wherein at least one

straight section of pipe has two end portions that each have a bend.

25. The method of claim 22 wherein at least one straight section of pipe has an end portion that has a bend of between about 90-180 degrees.

26. The method of claim 22 wherein at least one straight section of pipe has a pair of end portions that have a bend of between about 90-180 degrees.

27. The method of claim 15 wherein the pipeline has a diameter of between about 16 and 56 inches.

28. The method of claim 14 further comprising supporting the pipeline with a plurality of racks that cradle and space apart separate sections of the pipeline.

29. The method of claim 14 further comprising constructing the pipeline of step "b" of a plurality of generally straight sections and a plurality of bend sections and further comprising the step of supporting each generally straight pipe section at a position spaced away from the other pipe sections.

30. The method of claim 14 further comprising constructing the pipeline of step "b" of a plurality of generally straight sections and a plurality of bend sections and further comprising the step of supporting each bend pipe section at a position spaced away from the other pipe sections.

31. The method of claim 18 wherein the racks include pipe support surfaces that are shaped to continuously engage and cradle a part of the pipeline.

32. The method of claim 24 wherein the pipe support surfaces include low friction bearing material.

33. The method of claim 1 wherein the pipeline has a continuous bore that is piggable.

34. The method of claim 10 wherein the pipeline has a continuous bore that is piggable.

35. The method of claim 1 wherein the pipeline

sections are spaced apart so that exposed outer surfaces of the pipeline sections can be visually inspected.

36. The method of claim 10 wherein the pipeline sections are spaced apart so that exposed outer surfaces of the pipeline sections can be visually inspected.

37. The method of Claim 1 or 10 wherein the module interior is filled with inert gas.

38. The method of claim 37 wherein the inert gas is $CO_2$.

39. The method of claim 37 wherein the inert gas is nitrogen.

40. The method of claim 37 wherein the inert gas is argon.

41. The method of claim 37 wherein the inert gas is any fully oxidized gas compound.

42. The method of claim 37 wherein the gas is chilled to a temperature between about minus 30°F and 0°F.

43. A natural gas pipeline module transport or storage apparatus comprising:

a) a module having an interior;

b) a pipeline contained within the module interior, the pipeline having a bore;

c) a marine vessel for transporting or supporting the module;

d) wherein the module rests upon a deck of the vessel; and

e) wherein the pipeline has multiple layers, each layer having multiple bends and multiple straight sections that enable the pipeline to extend over substantially all of the interior.

44. The transport apparatus of claim 43 wherein the vessel is either a heavy lift transport vessel or a semi-submersible transport vessel.

45. The transport or storage apparatus of claim 1 wherein the vessel is either a new purpose build vessel or

an existing vessel.

46. The transport or storage apparatus of claim 46 further comprising one or more valves for isolating portions of the pipeline.

47. The transport or storage apparatus of claim 33 wherein the valves have a bore that is about the same diameter of the pipeline bore.

48. A natural gas pipeline module transport or storage apparatus comprising:

a) a floating module having an interior;

b) a pipeline contained within the module interior, the pipeline having a bore; and

c) wherein the pipeline has multiple layers, each layer having multiple bends and multiple straight sections that enable the pipeline to extend over substantially all of the interior.

49. The transport or storage apparatus of claim 43 further comprising pipe supports for supporting the pipeline inside the module.

50. The transport or storage apparatus of claim 49 wherein the pipe supports are metallic.

51. The transport or storage apparatus of claim 49 wherein the pipe supports are non-metallic.

52. The transport or storage apparatus of claim 49 wherein the pipe supports are polymeric.

53. The transport or storage apparatus of claim 49 wherein the pipe supports are support members having curved support surfaces that cradle the pipeline.

54. The transport or storage apparatus of claim 49 wherein the pipe supports are support members having curved support surfaces that cradle the pipeline in positions that space sections of the pipeline apart.